

The present application is a continuation application of now abandoned application serial no. 08/651,492, which was appealed to the Board of Patent Appeals and Interferences, Appeal No. 1999-0190. The Board handed down a decision (Paper no. 18) in the parent upholding the Examiner's rejections. The Board reasoned that Applicants failed to provide unexpected results over the closest prior art. See Appeal No. 1999-0190 at page 14, line 23.

Applicants now submit herewith an unexecuted Declaration under 37 C.F.R. 1.132 ("Tsutsui Declaration") demonstrating unexpected results over the alleged closest prior art as suggested by the Examiner. An executed declaration is being sent via international courier and will be submitted as soon as it is received.

In particular, Applicants have practiced the process of Example 1 of U.S. Patent No. ^{where?} 4,891,411 ("Sasaki et al.") using the catalyst taught in Example 1 of Sasaki et al. Additionally, Applicants have practiced the invention shown in Example 1 of the present invention using the catalyst taught by Example 1 of U.S. Patent No. 4,952,649 ("Kioka et al."). Finally, Applicants repeated the polymerization step of Example A9 of ^{check OK} the present invention using the catalyst taught by U.S. Patent No. 5,278,118 _{withdrawn} ("Cuffiana et al.").

Accordingly, Applicants respectfully request the Examiner to

remove the outstanding rejections in view of the demonstrated unexpected results over the closest prior art and allow all pending claims in the captioned application.

1. Rejection of Claims 1-4
under 35 U.S.C. §103(a)

The Office Action rejects claims 1-4 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,891,411 ("Sasaki et al."). The Office Action states:

Sasaki discloses all the essential limitations of the instant claims, except that the reference does not have a working example using the claimed Si/Mg molar ratio and the temperature heating range (col. 2, lines 6-15; col. 3, lines 66-68; col. 4, lines 47-49 and 62-64; col. 5, lines 1-5; and Example 1).

Applicants respectfully traverse this rejection because the Office Action fails to establish all three prongs necessary for a *prima facie* case of obviousness. Specifically, one of ordinary skill in the art would not have been motivated to vary the claimed Si/Mg molar ratio and the temperature heating range based on the teachings of Sasaki et al. Even assuming *arguendo* that a *prima facie* case has been established, Applicants rebut the presumption with evidence of unexpectedly improved catalytic activity of the claimed catalyst compared to the catalyst taught in Example 1 of

Sasaki et al.

Turning to the rule, the Federal Circuit held that a *prima facie* case of obviousness must establish: (1) some suggestion or motivation to modify the references; (2) a reasonable expectation of success; and (3) that the prior art references teach or suggest all claim limitations. Amgen, Inc. v. Chugai Pharm. Co., 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); In re Wilson, 165 USPQ 494, 496 (C.C.P.A. 1970).

A *prima facie* case of obviousness must also include a showing of the reasons why it would be obvious to modify the references to produce the present invention. See Ex parte Clapp, 277 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985). The Examiner bears the initial burden to provide some convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings. Id. at 974.

Even if a *prima facie* case of obviousness has been established, secondary considerations such as commercial success, long felt but unsolved need, failure of others, and unexpected results may nevertheless give rise to a patentable invention. Graham v. John Deere Co., 148 U.S.P.Q. 459 (1966). For example, evidence such as superiority in a property the compound shares with the prior art can rebut a *prima facie* case of obviousness. See In

re Chupp, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987).

In the present application, claim 1 recites a liquid magnesium compound contacted with a liquid titanium compound in the presence of an organosilicon compound having no active hydrogen in an amount of 0.25 to 0.35 mol based on 1 mol of the magnesium compound. Nowhere does Sasaki et al. provide any suggestion or motivation to one of ordinary skill to make this limitation. Accordingly, a *prima facie* case of obviousness does not exist.

But assuming *arguendo* that a *prima facie* case has been established, Applicants now provide evidence of unexpected results using the alleged closest prior art. In particular, the Examiner's Answer in Paper no. 14 mailed March 24, 1998, in parent application serial no. 08/651,492 (Appeal No. 1999-0190) stated at page 5

[N]o probative weight can be given to the data because the closest prior art catalyst is that of Sasaki and not the one used in the specification . . . the proper comparison is comparing an invention run using the reactants of the references as well as the closest prior art example, e.g. **Example 1 of the reference.**
[emphasis added]

Accordingly, Applicants practiced the polymerization of Example 1 of the present application using the catalyst taught by
of Sasaki et al.

The catalyst of Sasaki et al. (Example 1 of Sasaki et al.)

no new
evidence
has been
represented

practiced in the claimed invention only yielded a catalytic activity of 719 g-polymer/g-catalyst and 5750 g-polymer/g-catalyst. See Sasaki et al. at col. 8, lines 28-30. On the other hand, the catalyst of the present invention yielded a catalytic activity almost seven times greater of 2810 g-polymer/g-catalyst and 45500 g-polymer/g-catalyst. Clearly, the catalyst of the present application exhibits much higher activity than the catalyst of Sasaki et al.

As the court stated in In re Corkill, "a greater than expected result is an evidentiary factor pertinent to the legal conclusion of [non]obviousness". 711 F.2d 1496, 266 USPQ 1005 (Fed. Cir. 1985). One of ordinary skill in the art would not have been motivated to make the claimed invention based on the teachings of Sasaki et al. Moreover, the unexpected and superior advantages of the claimed invention rebuts any allegation of *prima facie* obviousness.

Accordingly, Applicants respectfully submit that the presently claimed invention is unobviousness over Sasaki et al. and respectfully request reconsideration and withdrawal of the rejections of claims 1-4 under 35 U.S.C. §103.

2. Rejection of Claims 1-4
under 35 U.S.C. §103(a)

*court already made
the decision - based on
all of the evidence*

The Office Action rejects claims 1-4 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,952,649 ("Kioka et al.").

The Office Action states:

Kioka discloses all the essential limitations of instant claims, except that the reference does not have a working example within the claimed Si/Mg molar ratio and heating temperature range (col. 1, lines 41-63; col. 7, lines 40-42; col. 9, lines 5-11; col. 10, lines 19-35; and Examples 32, 33 and 36).

The catalyst of Example 36 differs from that of claim 1 in that the Si/Mg ratio was 0.15/1 instead of 0.25/1 to 0.35/1.

However, it would have been obvious to one of ordinary skill in the art to use the claimed Si/Mg ratio in the catalyst of Example 36 because (1) the reference teaches such ratios, (2) ratios of 0.3/1 of reactants (D)/Mg(D) . . . are disclosed in Examples 32 and 33.

Again, Applicants respectfully traverse this rejection because the Office Action fails to establish all three prongs necessary for a *prima facie* case of obviousness. Specifically, one of ordinary skill in the art would not have been motivated to vary the claimed Si/Mg molar ratio and the temperature heating range based on the teachings of Kioka et al.

Even assuming *arguendo* that a *prima facie* case has been established, Applicants rebut the presumption with evidence of unexpectedly improved catalytic activity of the claimed catalyst compared to the catalyst taught in Example 1 of Kioka et al.

Applicants now provide evidence of unexpected results using the alleged closest prior art. In particular, the Examiner's Answer in Paper no. 14 mailed March 24, 1998 in parent application serial no. 08/651,492 (Appeal No. 1999-0190) stated at page 8

[N]o data has been presented based on the examples of the reference, e.g., **Examples 32, 33 and 36.** [emphasis added]

Accordingly, Applicants have practiced the polymerization of Example 1 of the present application using the catalyst taught by of Examples 32, 33 and 36 of Kioka et al. See Experiment 1 of the Tsutsui Declaration at pages 2-3.

In particular, the titanium catalyst was prepared according to Example 1 of Kioka et al., which served as the basis for Examples 32, 33 and 36. See Kioka et al. at Col. 16, lines 5-34. The Kioka et al. catalyst only had a catalytic activity of 1060 g-polymer/g-catalyst. On the other hand, the catalytic activity of the presently claimed invention is 50100 g-polymer/g-catalyst. Clearly, the presently claimed catalytic activity unobvious over the catalyst of Kioka et al.

Applicants further note that the catalyst of Kioka et al. is designed for polymerization of propylene (col. 1, lines 11-19) as opposed to the ethylene catalyst of the present invention. ^{Not even in US 10/2} Moreover, Experiment 1 of the Tsutsui Declaration demonstrates that

one skilled in the art would not have been motivated to vary the Si/Mg ratio in the solid titanium catalyst component to select an unobvious range of Si/Mg for obtaining good results in ethylene polymerization. The unexpected and superior advantages of the claimed invention clearly rebuts any allegation of *prima facie* obviousness.

Accordingly, Applicants respectfully submit that the presently claimed invention is unobviousness over Kioka et al. and respectfully request reconsideration and withdrawal of the rejections of claims 1-4 under 35 U.S.C. §103.

3. Rejection of Claims 1-4
under 35 U.S.C. §103(a)

The Office Action rejects claims 1-4 under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,278,118 ("Cuffiana et al."). The Office Action states:

Cuffiana discloses all the essential limitations the instant claims, except that the reference does not have a working example coming within the scope of the claims (col. 2, lines 21-24 and 43-50; col. 3, lines 38-40, col. 4, lines 12-30 and 41-43; and Example A1).

Yet again, Applicants respectfully traverse this rejection because the Office Action fails to establish all three prongs

necessary for a *prima facie* case of obviousness. Specifically, one of ordinary skill in the art would not have been motivated to vary the claimed Si/Mg molar ratio and the temperature heating range based on the teachings of Cuffiana et al.

Even assuming *arguendo* that a *prima facie* case has been established, Applicants rebut the presumption with evidence of unexpectedly improved catalytic activity of the claimed catalyst compared to the catalyst taught in Example A9 of Cuffiana et al.

In particular, the Examiner's Answer in Paper no. 14 mailed March 24, 1998 in parent application serial no. 08/651,492 (Appeal No. 1999-0190) stated at page 10 that the conversion of a magnesium compound such as magnesium dichloride into aluminum compound by reaction with aluminum ethyl dichloride would have been obvious to one of ordinary skill as well as substitution with the claimed organosilicon compound.

Accordingly, Applicants have practiced the polymerization of Example 1 of the present application using the catalyst taught by of Examples A9 of Cuffiana et al. in the absence of any specific indication of the closest prior art. See Experiment 3 of the Tsutsui Declaration at pages 4-5. Example A9 of Cuffiana et al. is the only example teaching an organosilicon compound having no active hydrogen as is presently claimed in claim 1. Accordingly,

OK



Applicants selected Example A9 as the alleged closest prior art.

The catalytic activity using the catalyst taught by Cuffiana et al. is ^{23000 g} ~~4520~~ g-polymer/g-catalyst. ^{reported (Table 1, col. 10)} On the other hand, the catalytic activity of the presently claimed invention is 50100 g- ^{Table 3, Ex. 1} _{of Spec.} polymer/g-catalyst. The unexpected and superior advantages of the claimed invention clearly rebuts any allegation of *prima facie* obviousness.

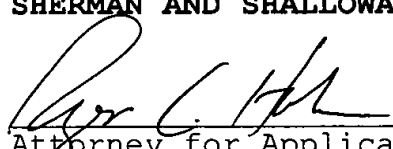
Accordingly, Applicants respectfully submit that the presently claimed invention is unobviousness over Cuffiana et al. and respectfully request reconsideration and withdrawal of the rejections of claims 1-4 under 35 U.S.C. §103.

CONCLUSION

In light of the foregoing, Applicants submit that the application is now in condition for allowance. The Examiner is therefore respectfully requested to reconsider and withdraw the rejection of the pending claims and allow the pending claims. Favorable action with an early allowance of the claims pending is earnestly solicited.

Respectfully submitted,

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